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ABSTRACT

This paper discusses the impact of the virtual campus on teacher and learning. It begins with a section that discusses what a virtual campus is and presents two models of the virtual campus. The second section summarizes factors that fuel the growth of non-traditional providers and drive major changes in the ways in which traditional universities fulfill their teaching role. The third section addresses student-centered learning, including characteristics of good courses from the students' perspectives. The fourth section describes advantages of technologies that enable the broadcasting of information to students independent of time and place. The fifth section presents a "virtual reality check" that examines the impact virtuality has on teaching and learning activities, including criteria related to cost, implications for traditional notions of academic work, accreditation and quality assurance issues, and legislative and policy issues. It is concluded that the ultimate determinant of the success of the virtual campus rests with the student. (MES)

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THE VIRTUAL CAMPUS: IMPACT ON TEACHING AND LEARNING

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WHAT IS A VIRTUAL CAMPUS

The Virtual campus or Virtual university can be defined as a set of technology enabled functions making possible interactions between the different groups in the university (student, teaching staff, management and support personnel) without the need to coincide in time or space.

In practice, there are two main models for the virtual campus emerging. The first of these is one in which an educational institution uses communication and information technologies (CITs) to provide all conventional services. In the second model, services are unbundled, with some being sub-contracted to other organisations.

A robust example of the first model, the total virtual university, is hard to find, although there are many examples of institutions moving into online education for some courses or programs. These include both commercial arms of traditional universities and the newer providers such as corporate and for-profit universities. Many traditional universities are also gearing up to provide what were formerly distance education programs in an online mode.

Examples of the second model are more prominent. The much publicised Western Governors University brokers courses that are developed and delivered by over 40 participating institutions. The Universitas 21/News Corporation joint venture is another example, as is the Global University Alliance which will use the platform of NextEd to deliver courses on behalf of its nine member universities. NextEd provides the necessary online campus functionality, including teaching and learning software, student activity tracking, electronic communications, call centre technology for student services and support and online marketing.

The current state of play is comprehensively described in a major study released in Australia last month, of the growth of non traditional educational institutions (e.g., corporate and for-profit universities) and their impact on the traditional non-profit university sector. Entitled *"The Business of Borderless Education"*, the report concludes that "notwithstanding the rapid growth of online delivery among the traditional and new providers of higher education, there is as yet little evidence of successful, established virtual institutions, either as Internet-based educational providers or as "hollow" organisations which broker the programs of other educational operations". (1)

A similar U.K. review commissioned by the CVCP/HEFCE also throws doubt on the extent to which universities will become 100% virtual, but does conclude that "every institution will need to have some capability in that field and most courses will need, at least, to make use of the web as a resource base". (2)

And there is plenty of evidence that both traditional universities and non-traditional providers are adopting an incremental approach to going online, mapping out a future that has both "bricks and clicks" i.e., both physical and virtual campuses, and pursuing partnerships to bring together multiple strengths.

These moves can be seen as a response to the highly competitive market place in which universities find themselves.

There are many drivers for this changing environment and it is worth examining some of these in greater detail to better understand just what is happening.

DRIVERS FOR CHANGE

"Higher education around the world must undergo a dramatic makeover if it expects to educate a workforce in profound transformation." (3)

These are the words of George Klor de Alva, President of the University of Phoenix, the largest accredited for-profit university in the United States.

That the University of Phoenix has been relatively successful (with the world's largest completely online, full time degree seeking student body) is a reflection of that institution's philosophy that education today must be "ubiquitous, continuous, consumer-driven, concerned with quality assurance and outcomes oriented." (4)

Such a philosophy has been shaped by the many factors that are fuelling the growth of non-traditional providers as well as driving major changes in the ways in which traditional universities fulfil their teaching role.

These factors include:

- the globalisation of economies and the need for the continuous retraining of the workforce
- the development of the Information Age with its attendant knowledge explosion, resulting in an emphasis on learning how to learn and lifelong or perpetual learning
- the tendency for governments in many countries to see further education as a private good to be funded on user-pays principles
- the demands for greater access to tertiary education with more flexibility and convenience in attendance, time and place of study entry requirements and learning pathways, and progression
- the development of advanced communication and information technologies which make possible the development of more flexible virtual learning environments.

STUDENT-CENTRED LEARNING

As well as the drivers listed above, there are changing notions of what it means to learn. Universities are moving from a teacher-expert paradigm to a student-centred one.

Cognitive sciences research and social educational theory have emphasised the complex and idiosyncratic nature of learning and the part played by personal, social, cultural and political contexts.

The adoption of the "constructivist" framework, developed and largely influenced by science teaching, is based on a premise that knowledge and understanding is individually constructed.(5) Learning is the result of active reflection by the learner and integration of new information into existing concepts and frameworks.

In addition to changing ideas about the psychology of learning, researchers have also investigated different approaches to learning used by students. Two distinct approaches have been identified, with the adoption of one or the other being a function of teaching and assessment strategies. Students can thus be influenced to use a deep or surface approach. The former is characterised by looking for meaning in order to understand, while those students using the latter seek to memorise information.

Given the demonstrated relationship between the approach adopted and learning outcome, with deep learning associated with high quality outcomes(6), higher education institutions are increasingly emphasising teaching and learning strategies that foster deep approaches.

Students' own views of what constitutes "good" teaching and "good" courses reinforce the need to focus

on deep learning approaches. Ramsden(7) describes "good courses" from the students' perspective as those which:

- make it clear what you have to learn;
- get you interested and active;
- provide the right balance of freedom and control;
- give you plenty of feedback;
- assess understanding, as well as recall.

TECHNOLOGY – THE ENABLER

It is the interactive and distributive characteristics of the Internet and telecommunication technologies that enable the virtual university to address the needs for flexible, lifelong learning and learner centredness.

For example, technologies that enable the broadcasting of information to students independent of time and place provide:

- greater opportunities for individuals living outside urban areas to participate in tertiary education. This is a particularly relevant point in the Australian context, given the decline in rural economies and the "tyranny of distance".
- individuals with busy professional lives and/or family commitments with the means to balance these demands against their need for ongoing professional development or re-skilling in the case of company restructuring or downsizing.
- the means by which learning is integrated with work for those individuals, organisations, communities and societies that recognise learning as a source of competitive advantage. Learning is increasingly being integrated with work and occurring whenever and wherever it is required.

The WWW, satellite broadcasts, wireless technologies and computer based learning packages are all examples of technologies which facilitate the tertiary education sector's efforts to meet society's expectations for greater flexibility in the learning experience and removal of existing geographical barriers to participation in learning. Developing technologies such as wearable computers and wireless networking will offer even greater flexibility in the future.

Deep learning with active engagement of the student as already described is enhanced through problem-based and collaborative learning approaches. Computer-based and interactive multimedia technologies, either standalone or networked, and mixed media packages provide opportunities for these approaches with the focus of interaction between the learner and the program. Teleconferencing, videoconferencing, computer-based interactive multimedia packages and various forms of computer mediated communication are technologies that facilitate synchronous delivery of content and real-time interaction between teacher and students as well as opportunities for problem-solving either individually or as a team.

Similarly, technology can enable students to customise learning content, process and outcomes to suit their individual learning styles and preferences. Computer-based interactive multimedia packages are just one example of a technology which offers content in a variety of formats, e.g. sound, graphic, video.

In the future, technological innovations such as 3 dimensional spaces and animated pedagogical agents, for example avatars, will facilitate the learning process. These animated agents, that build on previous research on intelligent tutoring systems, will provide greater opportunities for interaction between students and teachers, personalisation of the learning process and collaborative activities. Through the use of interactive simulation exercises, students are able to develop their problem-solving skills in 'real-life' situations.

A "VIRTUAL" REALITY CHECK

There is a lot of hype associated with the notion of the virtual campus and we would do well to examine

just what impact virtuality is having on teaching and learning activities.

Cost

First some comments about cost:

The decision by a university to go virtual should reflect strategies to extend markets or enhance the learning experience rather than a desire to reduce costs.

While some governments and some university managements may still believe that online teaching can reduce institutional costs, the evidence is to the contrary. All the organisations studied in *"The Business of Borderless Education"* report high costs of developing and delivering technology – mediated content.(8)

The "for-profit" institutions such as the University of Phoenix are not using online education to drive down costs but are achieving their cost efficiencies through the disaggregation or unbundling of the teaching process. Different groups are contracted for their expertise in parts of the process e.g., curriculum design, teaching, assessment, delivery, support. Costs are also reduced through a focus on teaching only and the exclusion of research and community service activities. The teaching-research nexus is gone with no direct relationship between research and the curriculum.

Non-traditional providers also focus on specific target client groups and tend to offer a relatively limited range of courses.

Implications for traditional notions of academic work

The virtual campus, when grounded in a learner-centred paradigm, challenges the traditional notions of academic work. The learner is no longer seen as passive but active. The academic's role changes from oracle to mentor and in the online environment, a team approach is the norm.

Many teachers may need to change their conception of teaching to be able to design effective learning experiences for their students in the virtual campus. The importance of such changing conceptions was emphasised in Alexander's (9) evaluation of over one hundred projects involving the use of information technology in teaching. Alexander's study found that the use of technology did not in itself result in improvements in the quality of learning but that success depended on the design of the whole learning experience. Academic development programs are needed to encourage teachers to focus not only on changing content and adopting new teaching strategies, but to also adopt an ongoing, reflective approach to student learning.

Accreditation and quality assurance issues

There are a number of significant impediments to operating the virtual campus, whether as a traditional or non-traditional provider.

These include:

- verifying student identity, particularly for the purposes of assessment
- ensuring adequate and equitable student access to IT infrastructure and support
- providing all necessary online information and library resources electronically
- helping students develop the necessary independent learning skills required in the online education world

When the virtual campus is seen as the means of extending an institution's market globally, further issues need to be added to the list, such as:-

- difficulties in working across different time zones and in many languages
- the need for local content in online courses
- the need to accommodate cultural differences in learning styles
- local accreditation requirements and government policies

Legislative and policy issues

When operating in virtual mode, a number of legislative and policy barriers are likely to be encountered. Certainly in many traditional universities, intellectual property policies are having to be revisited. Attention must also be paid to copyright requirements and, in Australia at least, the regulatory environment for telecommunications continues to change.

CONCLUSION

The ultimate determinant of the success of the virtual campus will rest with the student. Certainly many students place a premium on the sort of flexibility and convenience that the virtual campus can deliver. However, Smith (10) has found that, in Australia at least, many students have a degree of resistance to virtual courses. For many students, school leavers in particular, the social dimension of the on-campus experience continues to be important.

It is predicted that the best competitive advantage will be afforded to those brand name institutions that offer both virtual and on-campus experiences. As quoted in the Cunningham report, students want "the high touch as well as the high tech". (11)

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List of Acronyms

CVCP – Committee of Vice-Chancellors and Principles of the Universities of the United Kingdom

HEFCE – Higher Education Funding Council for England

USQ Online - University of Southern Queensland Online

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